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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,203	02/06/2002	Kent D. Henry	42074-00391	3517

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EXAMINER

GARBER, CHARLES D

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,203

Applicant(s)

HENRY ET AL.

Examiner

Charles D. Garber

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 22-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/15/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 22-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06/09/2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4-7, 11, 15, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salvo et al. (US Patent 6,356,205) in view of Dickey et al. (US Patent 5,821,405).

Regarding claim 1, Salvo discloses methods and systems for monitoring wells and water including plural probes 11 each with plural sensors 12 as shown in figure 1. The probes are shown in the figure communicating via transceivers 17 to a central

location via transceiver 24. The interconnection by signals 25 may be considered a network.

Control 22 or 55 is a central controller connectable to the communications network. The control communicates with each of the multi-parameter monitoring tools to receive (extract) information concerning the groundwater characteristics obtained from the sensors (column 3 lines 25-35) as well as to transmit data to calibrate sensors (column 7 lines 10-12).

Salvo also discloses the sensors are interchangeable (column 6 lines 12-26). Salvo explains that "a sensor 12 can be replaced with a sensor that detects another groundwater characteristic. Alternatively, additional sensors can be added to the module 10, so the module 10 detects additional groundwater characteristics" and "the individual features of the system 1 are readily interchangeable, replaceable, and adapted for implementation at wells at any ... site".

Salvo however does not expressly recite the controller includes functionality to receive configuration information for each of the plurality of interchangeable sensor head components interconnected with each of the plurality of tool assemblies and this capability is not implied or inherent in the modular interchangeability explained above.

Dickey discloses a water monitoring system including a data logger or PC (similar to the controller of the instant invention) connected to a probe 10 with interchangeable sensors 16 (similar to the multi-parameter monitoring tool of the instant invention) that teaches the PC may learn of the probe's configuration directly from probe (column 7 lines 41-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a water monitoring system PC or controller with the ability to learn a probes configuration as this will "allow the PC to gather all information necessary to collect data from the product, display data to the user, execute sensor...setup and execute sensor...calibration."

As for claim 2, Salvo discloses "the user access and readily determines groundwater characteristics from virtually any location via the communication link 30" which is considered equivalent to the network selectively accessing and detecting each probe or tool connected to the network as in the instant invention. Furthermore, as discussed above, Dickey taught the PC or controller gathering "all information necessary to collect data from the product, display data to the user, execute sensor...setup and execute sensor...calibration" and Dickey teaches software memory illustrated in figure 7 to affect this functionality which is considered substantially equivalent to accessing, amending, and retrieving information stored in the accessed tool assembly, including data relating to each of the interchangeable sensor head components interconnected with the accessed tool assembly as in the instant invention. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide this capability for the same reasons given above.

As for claim 4. Dickey further teaches information from sensors 16 includes identification comprising its title and product software number for each of the interchangeable sensor head components interconnected with a particular one of the plurality of multi-parameter tool assemblies (column 7 line 41 to column 8 line 15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide identification data to the PC or controller as the information may be used by the PC to supply specific setup data peculiar to the sensor.

As for claim 5, as discussed above with respect to the Dickey reference, sensor 16 is an interchangeable sensor as in the instant invention alternative. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an interchangeable sensor in order to monitor only those parameters of interest for the particular site.

As for claim 6, Dickey teaches "after learning the calibration capability, the PC software, under user direction, must call the product software calibration function for the specified parameter. The product software via the sensor driver will compute new calibration constant(s) for the given parameter."

It would have been obvious to one having ordinary skill in the art at the time the invention was made to exchange data related to calibration of the sensor in order to ensure accurate readings.

As for claim 7, Salvo discloses dissolved oxygen shown in figure 3 which is one of the instant invention alternatives.

As for claim 11, Salvo discloses the signals 25 may be communicated by antenna 23 using radio waves as in the instant invention alternative (column 3 lines 4-15).

As for claim 15, Figure 3 of the Salvo reference shows what types of sensors are attached to the sensors 12 are attached to the probes 11. In the example, dissolved

oxygen, conductivity, pH, ORP, temperature and level sensors are installed at wells 143, 232 and 468.

As for claim 19, Salvo discloses communication links 30. The link receives information from the monitoring system 1 including GPS position for the specific well number (column 7 lines 54+) and the various monitored parameters. The specific geographical position is considered to provide for an identification of the probe or tool assembly connected to the communications network and receipt of the monitored parameters is considered to be processing of messages which are received and transmitted over the network as in the instant invention alternative.

As for claim 20, Salvo discloses monitoring ground water (column 1 lines 5-9).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvo et al. (US Patent 6,356,205) as modified by Dickey et al. (US Patent 5,821,405) and applied to claim 2 above and further in view of Owens et al. (US Patent 5,995,020).

The references do not expressly teach the central controller is further configured to selectively address each of the tool assemblies by placement of a unique address header in a message generated for transmission over the communications network.

Owens teaches "each downhole tool has a unique address such that only one tool is responsive to a specific address" (column 2 lines 44-45).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to selectively address each of the tool assemblies by placement of a unique address header in a message generated for transmission over the communications network for "in this fashion, communication can be established

between computer ... and a specific downhole tool ... without interference from other downhole tools".

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvo et al. (US Patent 6,356,205) as modified by Dickey et al. (US Patent 5,821,405) and applied to claim 5 above and further in view of Datasonde 4a/Brochure entitled New Series 4a Water Quality Instruments from Hydrolab (henceforth "Hydrolab Brochure")

Regarding claim 8, the Dickey reference as discussed above with respect to claim 5 does not expressly teach an interchangeable sensor head component comprising at least an accessory (which is defined in the specification as mechanical or electro mechanical components configured for performing a particular task) which is at least one of a wiper device, a shutter device and a stirring device.

The Hydrolab Brochure discloses a similar multi-sensor, multi-parameter water quality sensing device teaching a shuttered turbidity sensor which is an electromechanical device or an accessory as defined in the Applicant's disclosure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a shuttered turbidity sensor as the sensor may otherwise become obscured thereby requiring wiping.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvo et al. (US Patent 6,356,205) as modified by Dickey et al. (US Patent 5,821,405) and applied to claim 2 above and further in view of Mills et al. (US Patent 6,165,005).

Dickey further teaches a plurality of ports shown in figure 1 or 2 at item 14 each configured to engage and provide an interconnection with the interchangeable sensor

component 16. The PC is also configured to receive and process information relating to any interchangeable sensor head components in any of the sensor ports as discussed above. As discussed, one of ordinary skill would see that this advantageously provides for an easily reconfigurable sensor adapted to the particular needs at a monitoring site. However, the references do not expressly teach the PC or controller processing information as to the compatibility between the port and the interchangeable sensor inserted therein.

Mills teaches "A compatible sensor short-circuits the inputs to the open-circuit detector to indicate sensor presence. An incompatible sensor has such no short-circuit feature and fails to work on such a monitor" that nonetheless actuates a sensor switch that in turn, "short-circuits the open-circuit detector inputs when the monitor is attached to a monitor connector at the opposite end ... Thus, the sensor switch simulates the presence of a compatible sensor to the monitor."

The combination of a short-circuit conductor and the monitor open-circuit detector functions to detect a no-sensor condition. "This is a useful indicator for the monitor signal processor, which can distinguish between a sensor malfunction and a no-sensor condition, providing a display to the user accordingly."

It would have been obvious to one having ordinary skill in the art at the time the invention was made to process information as the compatibility between the port and the sensor so that one distinguish between a sensor malfunction and a no-sensor condition.

Claims 10, 12-14, 16-18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salvo et al. (US Patent 6,356,205) as modified by Dickey et al. (US Patent 5,821,405) and applied to claim 1 above and further in view of Henry et al. (US Patent 6,305,944).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claim 10, the references do not expressly teach the tool assemblies may be further configured to communicate directly with at least one other tool assembly over the communications network.

Henry teaches one tool listening for the signal from other tools before responding to a general message (column 37 line 59 to column 38 line 9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to listen to messages from other tools and waiting to respond to a general message so as not to interfere with their signals.

As for claim 12, while Salvo further discloses the plurality of tool assemblies are located at a site remote from the central controller as shown in figure 1 the references do not expressly teach connection to the communications network is provided through use of a modem/controller device.

Henry teaches using a modem 408 and central controller 402 communicating to sensor probes 406 via modem/controller 412 using a phone network 410 (see figure 29b and column 32 lines 57+).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a modem/controller in order to take advantage of an existing network such as the phone system, which is very widespread.

As for claim 13, Henry teaches modem/controller 434 employed for communicating over the network including ISP 433 with functionality to emulate Internet protocol communication. It would have been obvious to one having ordinary skill in the

art at the time the invention was made to emulate another system such as internet communication protocols in order to take advantage of another existing network.

Henry also teaches communications may be established with devices other than the central controller such as with other quad boxes (column 32 lines 48-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to communicate with other devices such as other quad boxes in instances where parameters monitored at one location may be effective in directing monitoring criteria at another locations (column 30 lines 18-27).

As for claim 14, Henry teaches "The monitoring system may comprise a central controller, such as a personal computer or palm top computer". It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a PC or palm top computer as central controller because it is "also connectable to the communications network and may be employed to perform various functions with regards to monitoring of the networked tool assemblies as well as providing an interface through which a system user may initiate various functions."

As for claim 16, Henry teaches "included in the central controller may be a test processing module. This module may be employed to perform various functions with regards to the tests the tool assemblies perform. Functionality is provided as part of this testing module to view tests, which are currently loaded on a particular tool assembly. Interactive screen displays are also provided for creating new tests, amending existing tests or manually initiating existing tests."

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the controller to provide for amending test schedules such as “to a schedule with a shorter interval between sensor readings when more frequent sensor readings are desired due to an identified transient condition.”

As for claim 17, Henry teaches the use of interactive screen displays providing for amending “parameters which one or more of the tool assemblies employ in performing monitoring functions”. “Parameter information may be viewed and/or amended for creating new tests, amending existing tests or manually initiating existing tests. Various information, which may be entered via the test processing module, includes a schedule for performing automated testing.” These information are relating to the operations of the at least one tool assembly including the data for each of the interchangeable sensor head components connected thereto user commands.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a user interface with screen display and user commands for entering information relating to tool and sensor operation in order for example to amend test schedules when more frequent sensor readings are desired due to an identified transient condition.

As for claim 18, Dickey teaches detecting which of the interchangeable sensor head components is interconnected with the at least one tool assembly (column 7 lines 42-50), as in the instant invention alternative, in order to advantageously execute the proper setup and calibration as discussed above.

As for claim 21, Henry teaches "the reply message received from the tool assemblies may include detailed information about the configuration of the tool assembly" such as "firmware version"

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the tool to forward the current firmware version in messages to the controller so that as new firmware becomes available the controller may easily identify which tools will require update (column 4 line 57+).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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